

# Claims

- [c1] A method for allowing a player of a video game to control a three-dimensional game character in a three-dimensional game world, the method comprising the steps of:
  - acquiring video image data of a player of a game;
  - analyzing the acquired video image data to identify the location of a portion of the player's body; and
  - using the identified location of the portion of the player's body to control behavior of a game character.
- [c2] The method of claim 1 wherein step (b) further comprises identifying the location of the player's head.
- [c3] The method of claim 2 wherein step (b) further comprises identifying the location of the player's hands.
- [c4] The method of claim 2 wherein step (b) further comprises identifying the location of the player's feet.
- [c5] The method of claim 2 wherein step (b) further comprises identifying the location of the player's torso.
- [c6] The method of claim 2 wherein step (b) further comprises identifying the location of the player's legs.

- [c7] The method of claim 2 wherein step (b) further comprises identifying the location of the player's arms.
- [c8] The method of claim 2 wherein step (c) comprises steering a game character in a rightward direction when the player's head leans to the right.
- [c9] The method of claim 2 wherein step (c) comprises steering a game character in a leftward direction when the player's head leans to the left.
- [c10] The method of claim 2 wherein step (c) comprises steering a game character in an upward direction when the player's head is raised.
- [c11] The method of claim 2 wherein step (c) comprises steering a game character in a upward direction when the player's head is lowered.
- [c12] The method of claim 2 wherein step (c) comprises steering a game character in an downward direction when the player's head is raised.
- [c13] The method of claim 2 wherein step (c) comprises steering a game character in a downward direction when the player's head is lowered.
- [c14] The method of claim 2 wherein step (c) comprises caus-

ing a game character to crouch when the player's head is lowered.

[c15] The method of claim 2 wherein step (c) comprises causing a game character to assume an erect position when the player's head is raised.

[c16] The method of claim 2 wherein step (c) comprises causing a game character to jump when the player's head rises rapidly.

[c17] The method of claim 2 wherein step (c) comprises leaning a game character to the left when the player's head leans to the left.

[c18] The method of claim 2 wherein step (c) comprises leaning a game character to the right when the player's head leans to the right.

[c19] The method of claim 2 wherein step (c) comprises accelerating a game character when the player's head is lowered.

[c20] The method of claim 2 wherein step (c) comprises decelerating a game character when the player's head is raised.

[c21] The method of claim 1 wherein step (b) further comprises identifying the location of the player's hands.

- [c22] The method of claim 21 wherein step (b) further comprises identifying the location of the player's feet.
- [c23] The method of claim 21 wherein step (b) further comprises identifying the location of the player's torso.
- [c24] The method of claim 21 wherein step (b) further comprises identifying the location of the player's legs.
- [c25] The method of claim 21 wherein step (b) further comprises identifying the location of the player's arms.
- [c26] The method of claim 21 wherein step (c) comprises decelerating a game character when the player's hands are held away from the player's body.
- [c27] The method of claim 21 wherein step (c) comprises raising a game character's left hand when the player's left hand is raised.
- [c28] The method of claim 21 wherein step (c) comprises raising a game character's right hand when the player's right hand is raised.
- [c29] The method of claim 21 wherein step (c) comprises accelerating a game character when the distance between the game player's body and hand decreases.
- [c30] The method of claim 21 wherein step (c) comprises de-

celerating a game character when the distance between the game player's body and hand increases.

[c31] The method of claim 21 wherein step (c) comprises turning a game character to the left when the distance between the player's left hand and body increases.

[c32] The method of claim 21 wherein step (c) comprises turning a game character to the right when the distance between the player's right hand and body increases.

[c33] The method of claim 1 wherein step (b) further comprises identifying the location of the player's feet.

[c34] The method of claim 33 wherein step (b) further comprises identifying the location of the player's torso.

[c35] The method of claim 33 wherein step (b) further comprises identifying the location of the player's legs.

[c36] The method of claim 33 wherein step (b) further comprises identifying the location of the player's arms.

[c37] The method of claim 1 wherein step (b) further comprises identifying the location of the player's torso.

[c38] The method of claim 37 wherein step (b) further comprises identifying the location of the player's legs.

[c39] The method of claim 37 wherein step (b) further com-

prises identifying the location of the player's arms.

[c40] The method of claim 1 wherein step (b) further comprises identifying the location of the player's legs.

[c41] The method of claim 40 wherein step (b) further comprises identifying the location of the player's arms.

[c42] The method of claim 1 further comprising the step of analyzing the acquired video image data to determine a gesture made by the player.

[c43] The method of claim 42 further comprising the step of controlling the game character responsive to the determined gesture.

[c44] The method of claim 42 further comprising the step of spinning the game character clockwise in response to the gesture.

[c45] The method of claim 42 further comprising the step of spinning the game character counter-clockwise in response to the gesture.

[c46] A system for allowing a player of a video game to control a three-dimensional game character in a three-dimensional game world, the system comprising:  
an image acquisition subsystem acquiring video image data of a player of a game;

an analysis engine identifying the location of a portion of the player's body; and  
a translation engine using the identified location of the portion of the player's body to control behavior of a game character.

- [c47] The system of claim 46 wherein said analysis engine identifies the location of the player's head.
- [c48] The system of claim 47 wherein said analysis engine identifies the location of the player's hands.
- [c49] The system of claim 47 wherein said analysis engine identifies the location of the player's feet.
- [c50] The system of claim 47 wherein said analysis engine identifies the location of the player's torso.
- [c51] The system of claim 47 wherein said analysis engine identifies the location of the player's legs.
- [c52] The system of claim 47 wherein said analysis engine identifies the location of the player's arms.
- [c53] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in a rightward direction when the player's head leans to the right.

- [c54] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in a leftward direction when the player's head leans to the left.
- [c55] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in an upward direction when the player's head is raised.
- [c56] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in a upward direction when the player's head is lowered.
- [c57] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in an downward direction when the player's head is raised.
- [c58] The system of claim 47 wherein said translation engine outputs signals indicative of steering a game character in a downward direction when the player's head is lowered.
- [c59] The system of claim 47 wherein said translation engine outputs signals indicative of causing a game character to crouch when the player's head is lowered.
- [c60] The system of claim 47 wherein said translation engine outputs signals indicative of causing a game character to assume an erect position when the player's head is



raised.

- [c61] The system of claim 47 wherein said translation engine outputs signals indicative of causing a game character to jump when the player's head rises rapidly.
- [c62] The system of claim 47 wherein said translation engine outputs signals indicative of leaning a game character to the left when the player's head leans to the left.
- [c63] The system of claim 47 wherein said translation engine outputs signals indicative of leaning a game character to the right when the player's head leans to the right.
- [c64] The system of claim 47 wherein said translation engine outputs signals indicative of accelerating a game character when the player's head is lowered.
- [c65] The system of claim 47 wherein said translation engine outputs signals indicative of decelerating a game character when the player's head is raised.
- [c66] The system of claim 46 wherein said analysis engine identifies the location of the player's hands.
- [c67] The system of claim 66 wherein said analysis engine identifies the location of the player's feet.
- [c68] The system of claim 66 wherein said analysis engine

identifies the location of the player's torso.

- [c69] The system of claim 66 wherein said analysis engine identifies the location of the player's legs.
- [c70] The system of claim 66 wherein said analysis engine identifies the location of the player's arms.
- [c71] The system of claim 66 wherein said translation engine outputs signals indicative of decelerating a game character when the player's hands are held away from the player's body.
- [c72] The system of claim 66 wherein said translation engine outputs signals indicative of raising a game character's left hand when the player's left hand is raised.
- [c73] The system of claim 66 wherein said translation engine outputs signals indicative of raising a game character's right hand when the player's right hand is raised.
- [c74] The system of claim 66 wherein said translation engine outputs signals indicative of accelerating a game character when the distance between the game player's body and hand decreases.
- [c75] The system of claim 66 wherein said translation engine outputs signals indicative of decelerating a game character when the distance between the game player's body

and hand increases.

[c76] The system of claim 66 wherein said translation engine outputs signals indicative of turning a game character to the left when the distance between the player's left hand and body increases.

[c77] The system of claim 66 wherein said translation engine outputs signals indicative of turning a game character to the right when the distance between the player's right hand and body increases.

[c78] The system of claim 46 wherein said analysis engine identifies the location of the player's feet.

[c79] The system of claim 78 wherein said analysis engine identifies the location of the player's torso.

[c80] The system of claim 78 wherein said analysis engine identifies the location of the player's arms.

[c81] The system of claim 78 wherein said analysis engine identifies the location of the player's legs.

[c82] The system of claim 46 wherein said analysis engine identifies the location of the player's torso.

[c83] The system of claim 82 wherein said analysis engine identifies the location of the player's arms.

- [c84] The system of claim 82 wherein said analysis engine identifies the location of the player's legs.
- [c85] The system of claim 46 wherein said analysis engine identifies the location of the player's arms.
- [c86] The system of claim 46 wherein said analysis engine identifies the location of the player's legs.
- [c87] The system of claim 46 wherein said analysis engine determines a gesture made by the player.
- [c88] The system of claim 87 wherein said translation engine outputs signals indicative for controlling the game character responsive to the determined gesture.
- [c89] The system of claim 87 wherein said translation engine outputs signals indicative of spinning the game character clockwise in response to the gesture.
- [c90] The system of claim 87 wherein said translation engine outputs signals indicative of spinning the game character counter-clockwise in response to the gesture.